

CHARLES RIVER WATERSHED STUDY

HYDRAULICS AND HYDROLOGY
INTERIM MEMORANDUM #2

1967 CHARLES RIVER BASIN SONIC SOUNDINGS

prepared by
New England Division, Corps of Engineers
Department of the Army
October 1967

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On inquiry by the Corps, MIT Professor Harold E. Edgerton offered to make sonic soundings of Charles River Basin sections chosen by the Corps. The resulting twenty traverses are recorded on a map and four sheets of sections attached to this memorandum.

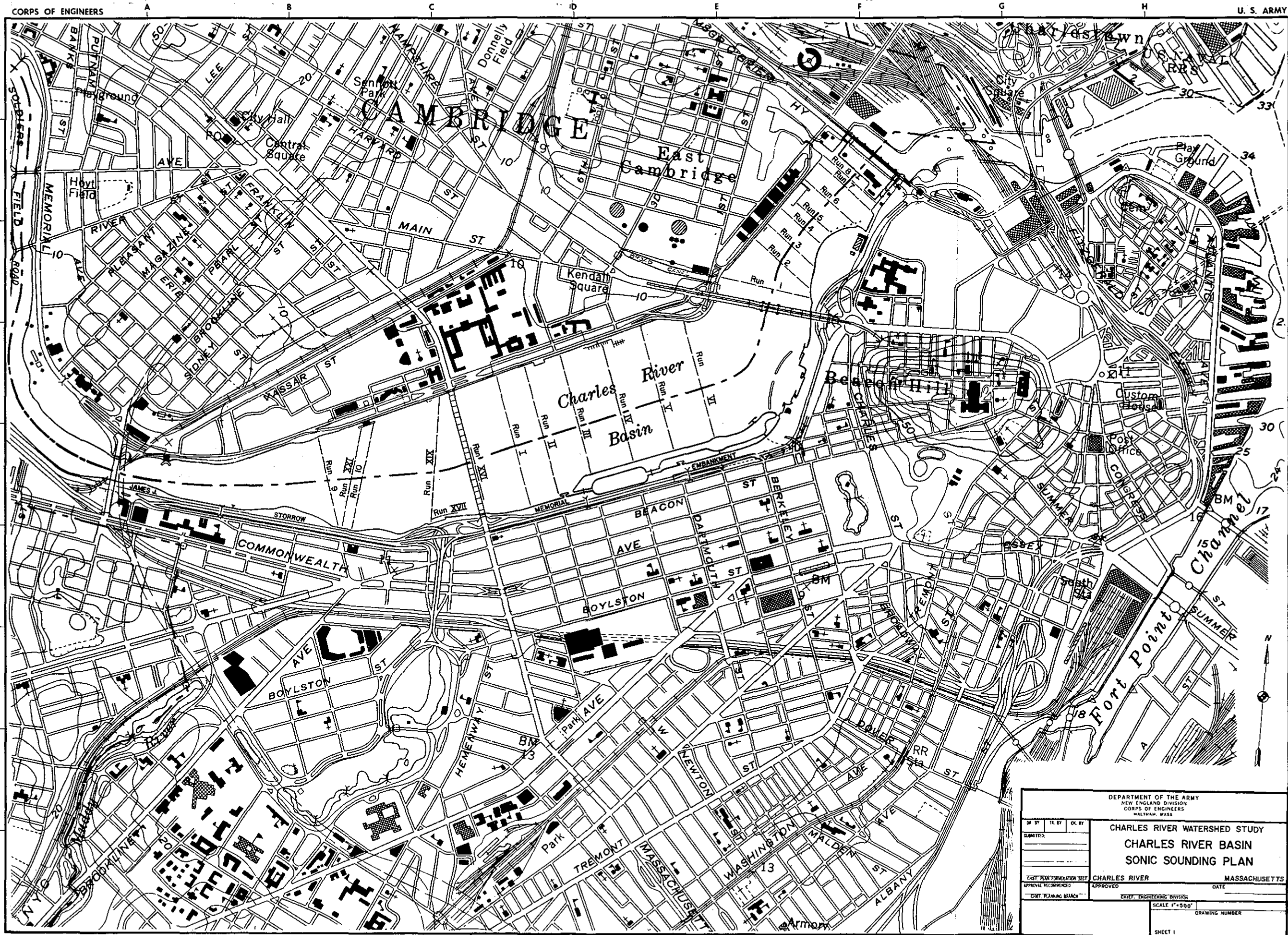
Seven runs across the Basin were made 3 July 1967 between the Massachusetts Avenue Bridge and the Longfellow Bridge, numbered I, II, III, IV, V, VI, and XVI. Eight more runs across the Basin were made 7 July 1967 between the Longfellow Bridge, and the Charles River Dam, numbered 1, 2, 3, 4, 5, 6, 7, 8. Also, five runs were made across the river at and upstream of Massachusetts Avenue Bridge, numbered, XVIII, XIX, XXI, and 9 and 10.

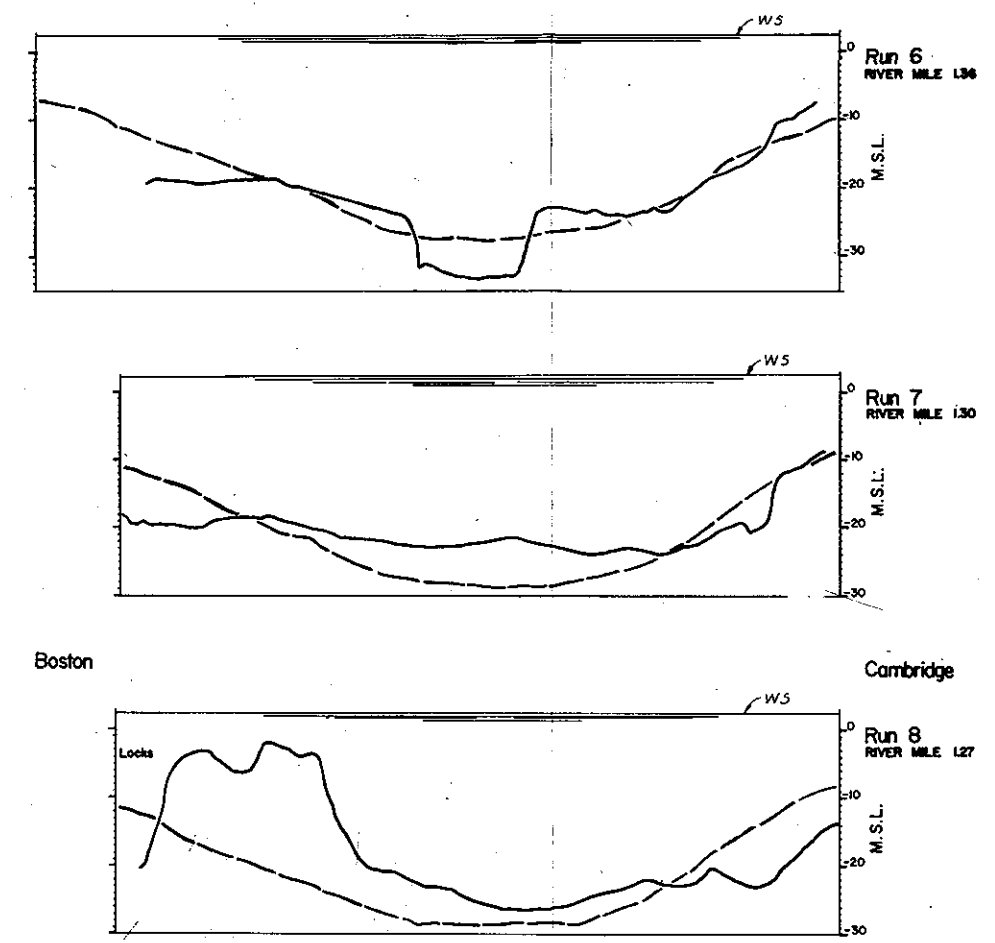
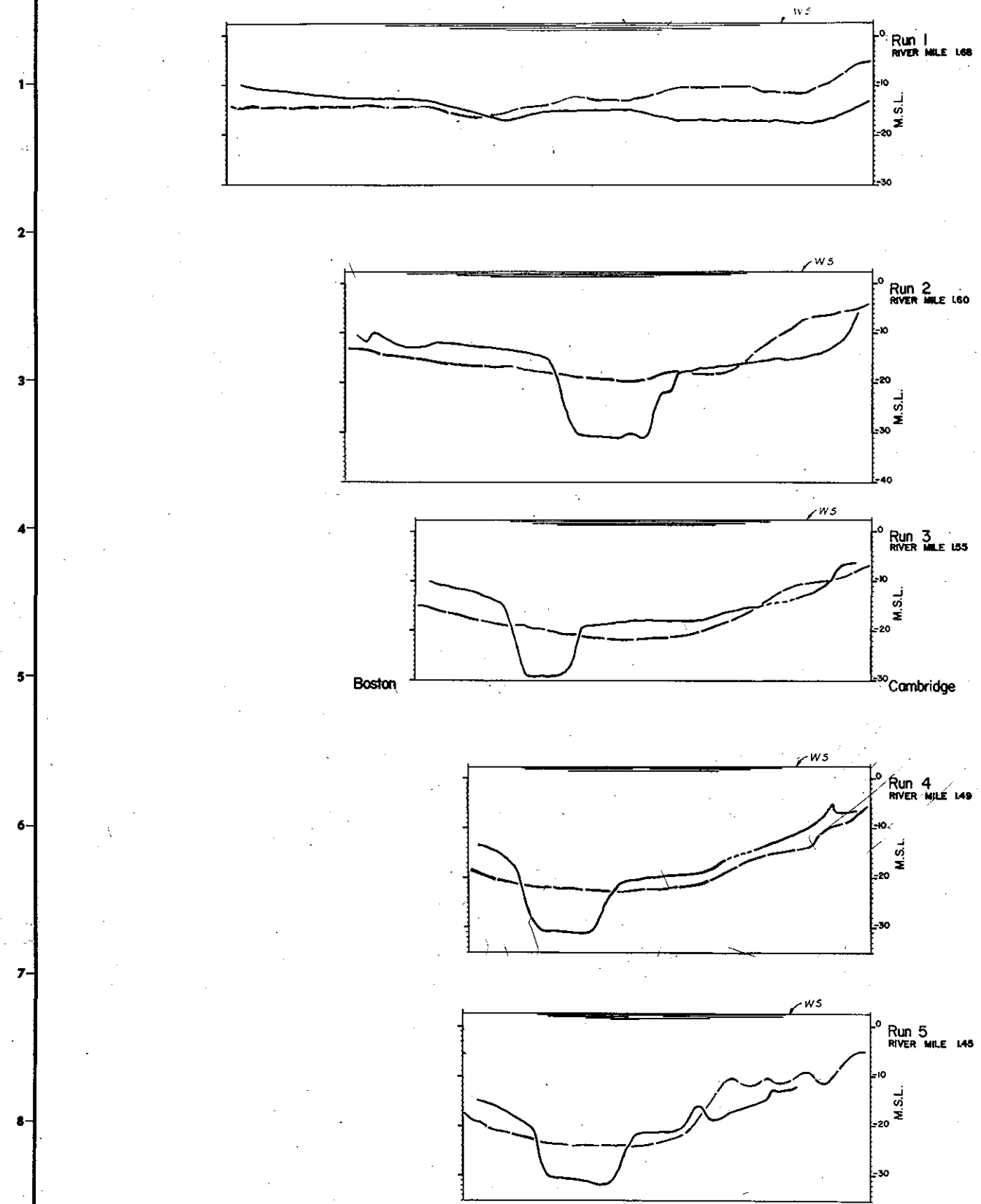
So far as possible, these runs were made along the projections of the center-lines of the Back Bay alphabetically named streets, and on alignments related to major water-flow features of the Basin downstream of the Cottage Farms (BU) Bridge, such as the MIT Magnetic Laboratory cooling ports, the Cambridge Electric Light Company condenser cooling

ports, Deerfield Street conduit, the Fens outlet, the Stony Brook (Roxbury) conduit outfalls, the canals and the Charles River Dam navigation lock and water sluices.

The work was accomplished without charge to the Corps of Engineers with Dr. Edgerton's personal boat and equipment, and supplies furnished by Dr. Edgerton. On 3 July Dr. Edgerton was in charge with aid from his assistant, John Yules, and Corps of Engineers personnel. On 7 July Mr. Yules was in charge with Corps of Engineers personnel assisting. Dr. Edgerton's assistant, Mr. John Yules, under contract with the Corps of Engineers, translated the Edgerton automatic recorder data to convenient scales, as shown on the attached sheets. To each cross-section, matching 1902 cross-sections were plotted from a 1902 sounding map which accompanied the John R. Freeman report to the Charles River Dam Recess Legislative Commission, published in 1903.

Comparing the 1967 sonic soundings with the 1902 sounding, there is evidence of some bottom change. A channel from the Broad Canal to the boat lock shows on cross-sections 2, 3, 4, 5 and 6. Excavation for fill to construct the Storrow Memorial Embankment is apparent on cross-sections I, II, III, IV, V, and VI.

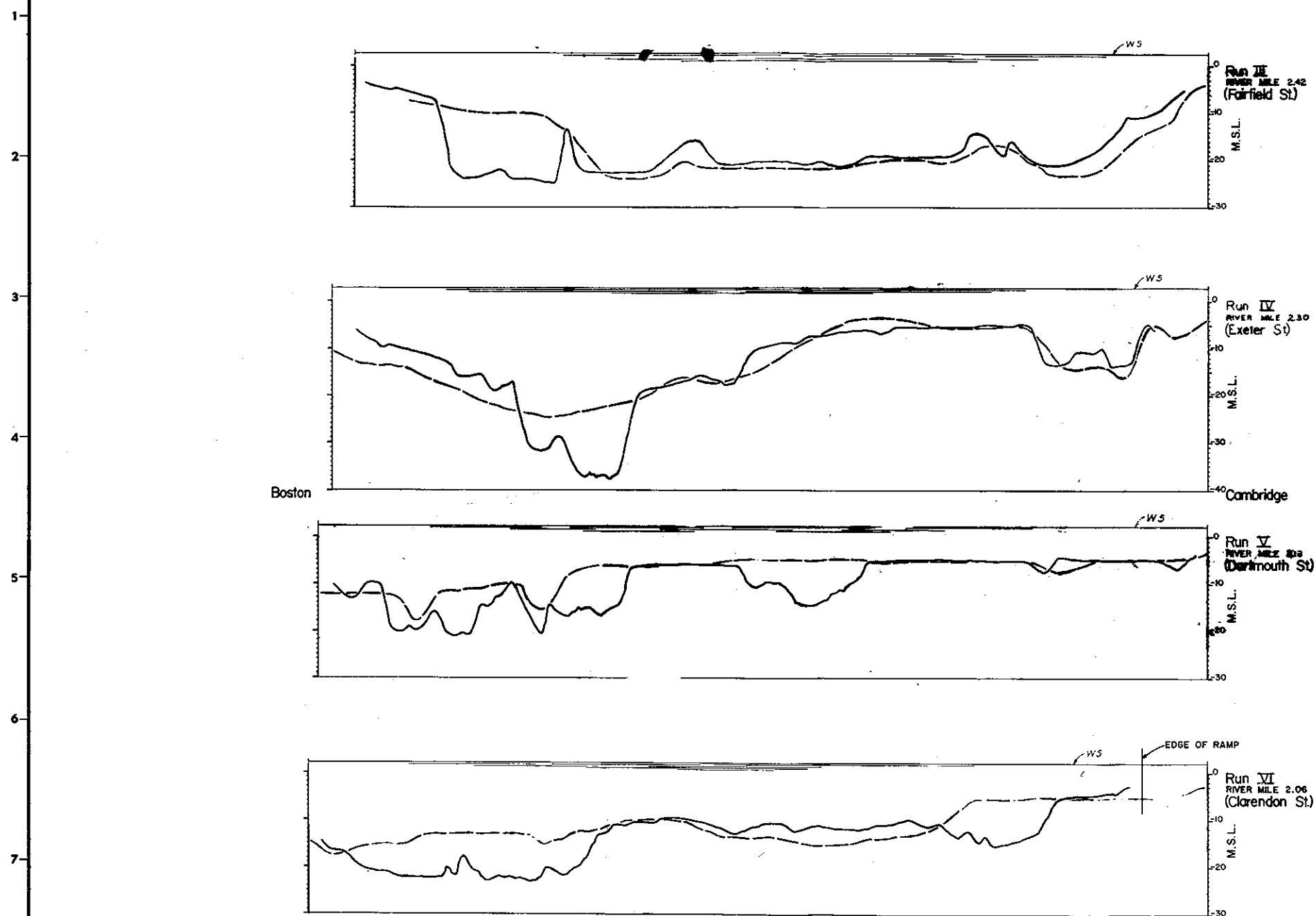




From C.S.P. Surveys of 7 July, 1967
J. Blackwell J. Coffrey J.A. Yule

DATUM: MEAN SEA LEVEL
DEPTHS IN FEET
HORIZONTAL SCALE: 1 in = 100 ft
—— 1967 SONIC-SOUNDINGS
----- 1902 SURVEY
Normal Water Surface 2.38' Above M.S.L.

REVISION	DATE	DESCRIPTION	BY
U.S. ARMY ENGINEER DIVISION, NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.			
CHARLES RIVER WATERSHED STUDY CHARLES RIVER BASIN SONIC SOUNDINGS CROSS-SECTIONS			
PROJECT NUMBER		MASSACHUSETTS	
APPROVED		DATE	
CHIEF, DESIGN BRANCH		CHIEF, ENGINEERING DIVISION	
SCALE		SPEC. NO. CIV. ENG. 19-018- DRAWING NUMBER	



From C.S.P. Surveys of 3 July, 1967

H.E. Edgerton J. Blackwell J.A. Yule

DATUM: MEAN SEA LEVEL

DEPTHS IN FEET

HORIZONTAL SCALE: 1 in. = 100 ft

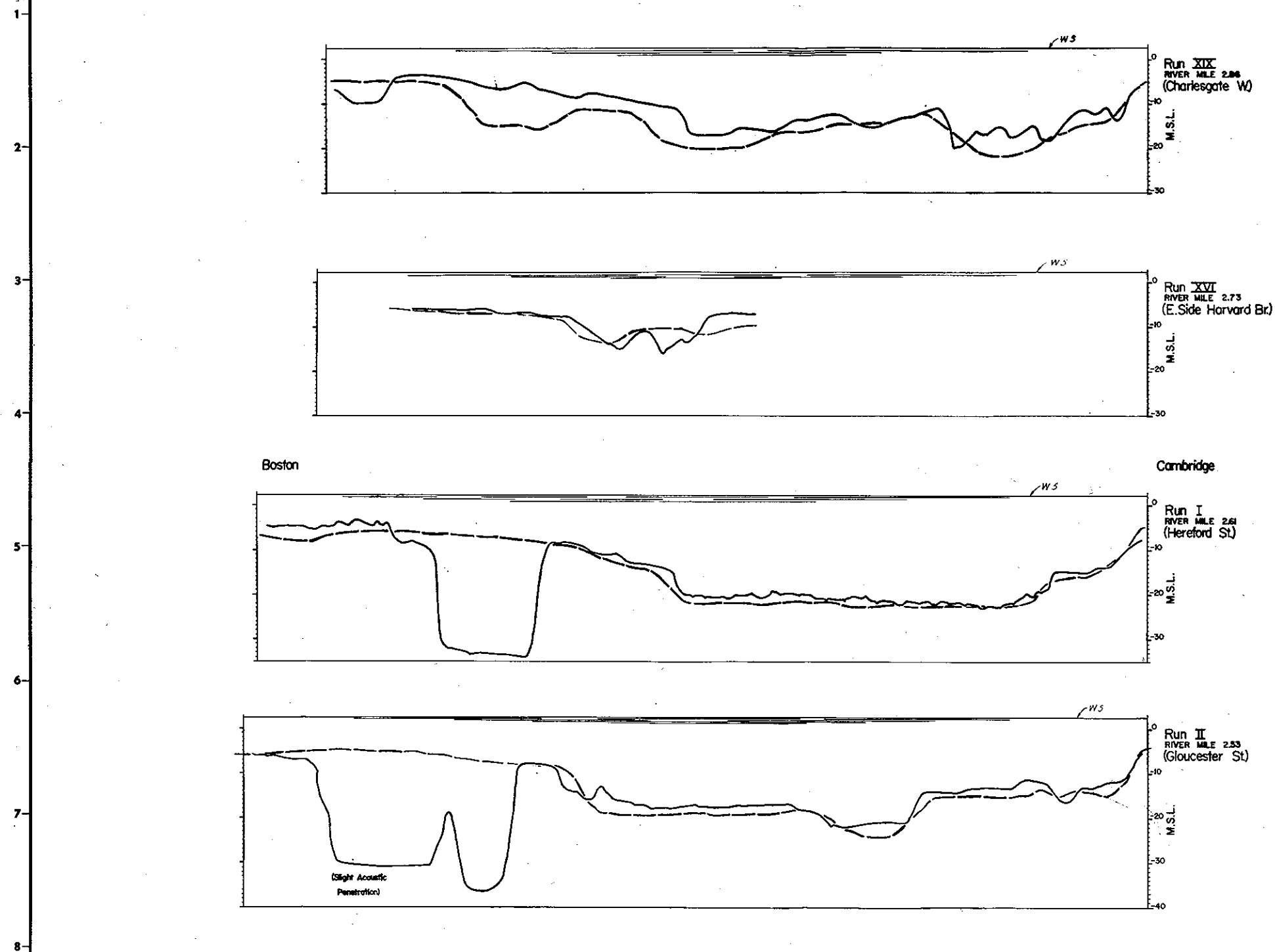
———— 1967 SONIC-SOUNDINGS

----- 1902 SURVEY

Normal Water Surface 2.38' Above M.S.L.

REVISION	DATE	DESCRIPTION	BY

U.S. ARMY ENGINEER DIVISION, NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.			
DES. BY J. Yule	DR. BY J. Yule	CE. BY J. Yule	CHARLES RIVER WATERSHED STUDY CHARLES RIVER BASIN SONIC SOUNDINGS CROSS-SECTIONS
REVIEWED:			
PROJECT ENGINEER	APPROVED	DATE	MASSACHUSETTS
CHEF, DESIGN BRANCH	CHEF, ENGINEERING DIVISION		
SCALE		SPEC. NO. CIV. ENG. 19-016- DRAWING NUMBER	
SHEET 3			



From CSP Surveys of 3 July, 1967

H.E. Edgerton J. Blackwell J. A. Yates

DATUM: MEAN SEA LEVEL

DEPTHS IN FEET

HORIZONTAL SCALE: 1 in. = 100 ft

—— 1967 SONIC-SOUNDINGS

----- 1902 SURVEY

Normal Water Surface 2.38' Above M.S.L.

REVISION	DATE	DESCRIPTION	BY

U.S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS
WALTHAM, MASS.

DES. BY: [Signature] CH. BY: [Signature]
SUBMITTED: [Date]

CHIEF, SECTION: [Signature]
PROJECT ENGINEER: [Signature]
APPROVED: [Signature]
CHIEF, DESIGN BRANCH: [Signature]

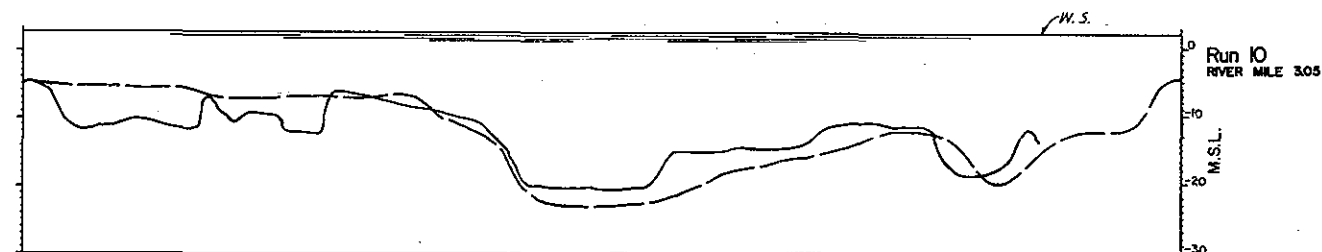
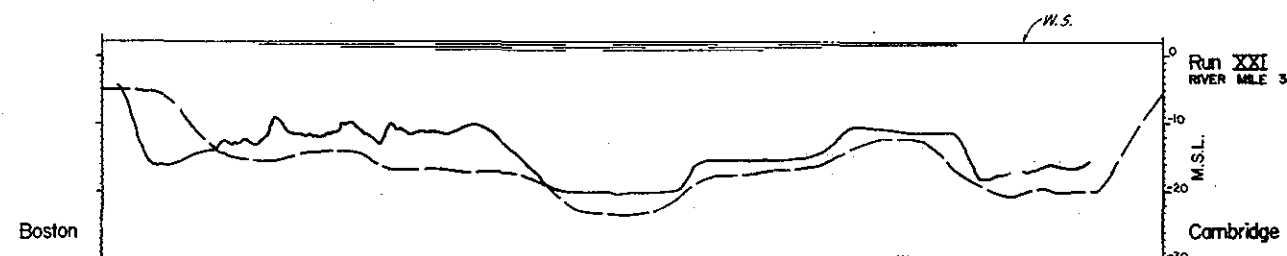
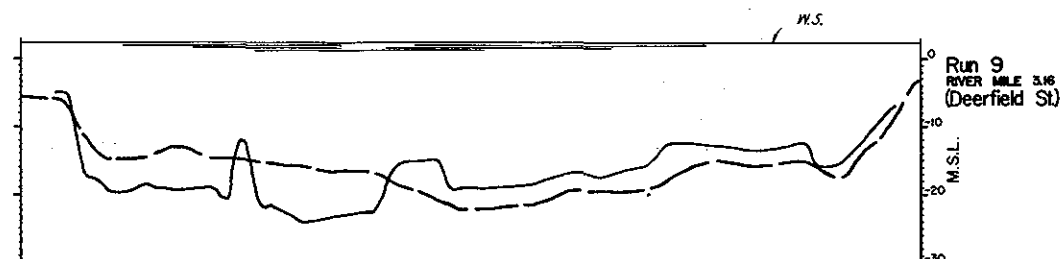
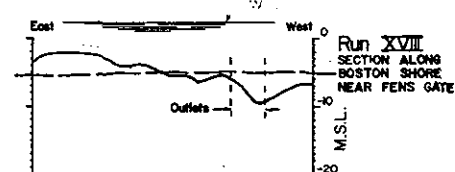
CHARLES RIVER WATERSHED STUDY
CHARLES RIVER BASIN
SONIC SOUNDINGS
CROSS-SECTIONS

CHARLES RIVER MASSACHUSETTS
APPROVED: [Signature] DATE: [Date]

CHIEF, ENGINEERING DIVISION

SCALE: [] SPEC. NO. CIV. ENG. 19-016
DRAWING NUMBER

SHEET 4



From C.S.P. Surveys of 3 & 7 July, 1967

H.E. Edgerton J. Blackwell J. Coffrey J.A. Yule

DATUM: MEAN SEA LEVEL

DEPTHS IN FEET

HORIZONTAL SCALE: 1 in. = 100 ft

————— 1967 SONIC-SOUNDINGS

----- 1902 SURVEY

Normal Water Surface 2.38' Above M.S.L.

REVISION	DATE	DESCRIPTION	BY

U.S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS
WALTHAM, MASS.

DES. BY	CHK. BY	DATE

CHARLES RIVER WATERSHED STUDY
CHARLES RIVER BASIN
SONIC SOUNDINGS
CROSS-SECTIONS

APPROVED	DATE

CHARLES RIVER MASSACHUSETTS

SCALE	SPEC. NO. CIV. ENG. 18-016

DRAWING NUMBER

SHEET 5